

**IN THE CLAIMS**

Please cancel claims 11 and 37 thru 40 without prejudice or disclaimer, amend claims 1 thru 3, 6 thru 8, 12, 13, 15, 17, 19, 21, 22, 24, 26 thru 32 and 34, and add claims 41 thru 43, as follows:

1           1. (Currently Amended)   An apparatus, comprising:  
2           a converter for converting an input optical signal to an original electrical signal;  
3           an identification unit for receiving said original electrical signal, for generating a first  
4           signal comprising said original electrical signal delayed by a predetermined quantity of time,  
5           for generating a second signal comprising said original electrical signal not delayed, for  
6           comparing said first and second signals, for forming a third signal in dependence upon said  
7           comparing of said first and second signals, and for detecting a bit rate in dependence upon  
8           said third signal;  
9           a clock generator for generating a separate reference clock signal in dependence upon  
10          said detected bit rate; and  
11          a recovery unit for recovering an input clock signal and data from said input optical  
12          signal in dependence upon said reference clock signal;  
13          wherein said identification unit further comprises:  
14          a first unit for delaying said original electrical signal, for performing an exclusive  
15          -OR operation upon said first and second signals, and for forming said third signal in  
16          dependence upon said exclusive-OR operation performed upon said first and second signals;  
17          and

18 a second unit for low-pass filtering said third signal, and for detecting said bit rate in  
19 dependence upon a voltage level of said low-pass filtered third signal;

20 said second unit comprising:

21 a low-pass filter for low-pass filtering said third signal;

22 an analog-to-digital converter for receiving said low-pass filtered third signal,  
23 and for converting said low-pass filtered third signal from an analog signal to a digital  
24 signal; and

25 a bit rate deriving unit for deriving said bit rate in dependence upon  
26 information related to a voltage level of said digital signal received from said analog-  
27 to-digital converter and a predetermined bit rate.

28 2. (Currently Amended) The apparatus of claim 1, said apparatus ~~corresponding to~~  
29 comprising an optical receiver for receiving optical signals having a plurality of different bit  
30 rates.

1 3. (Currently Amended) The apparatus of claim 1, said bit rate of said input optical  
2 signal ~~corresponding to~~ comprising a transmission rate.

1 4. (Previously Presented) The apparatus of claim 1, further comprising an amplifier  
2 for amplifying said original electrical signal received from said converter.

1 5. (Original) The apparatus of claim 4, said amplifier outputting said amplified

2 electrical signal to said identification unit.

1 6. (Currently Amended) The apparatus of claim 1, said converter ~~corresponding to~~  
2 comprising an optoelectric converter.

1 7. (Currently Amended) The apparatus of claim 1, said identification unit  
2 ~~corresponding to~~ comprising a bit rate identification unit.

1 8. (Currently Amended) The apparatus of claim 1, said comparing performed by said  
2 identification unit ~~corresponding to~~ comprising said identification unit performing an  
3 exclusive-OR logic operation upon said first and second signals.

Claims 9 - 11. (Cancelled)

1 12. (Currently Amended) The apparatus of claim 1, said first unit ~~corresponding to~~  
2 comprising a bit rate identification signal generator.

1 13. (Currently Amended) The apparatus of claim 1, said second unit ~~corresponding~~  
2 ~~to~~ comprising a bit rate deriving unit.

Claim 14. (Cancelled)

1           15. (Currently Amended) The apparatus of claim 1, said first unit comprising:

2           a buffer unit for receiving said original electrical signal, and for outputting two  
3           duplicate signals substantially equivalent to said original electrical signal, said two duplicate  
4           signals comprising a primary signal and a secondary signal;

5           a delay unit for receiving said primary signal, for delaying said primary signal by said  
6           predetermined quantity of time, and for outputting said delayed primary signal, said delayed  
7           primary signal ~~corresponding to~~ comprising said first signal and said secondary signal  
8           ~~corresponding to~~ comprising said second signal; and

9           an operator unit for performing said exclusive-OR logic operation upon said first and  
10          second signals.

1           16. (Previously Presented) The apparatus of claim 1, said clock generator comprising  
2           a plurality of oscillators for generating clocking signals of different frequencies, said  
3           oscillators being selectively operated to generate said reference clock signal in dependence  
4           upon said bit rate detected by said identification unit.

1           17. (Currently Amended) A method of operating a receiver which functions  
2           independently of a bit rate of a received signal, comprising:

3           receiving an original signal;

4           generating a resultant signal by performing an exclusive-OR operation on a first  
5           signal and a second signal, said first signal ~~corresponding to~~ comprising said original signal  
6           delayed by a predetermined quantity of time, said second signal ~~corresponding to~~ comprising

7 said original signal not delayed;

8 determining a bit rate of said original signal by low-pass filtering said resultant signal,  
9 and determining a voltage level of the low-pass filtered resultant signal;

10 generating a reference clock signal separate from said original signal and in  
11 dependence upon said determined bit rate; and

12 recovering an input clock signal and data from said original signal in dependence  
13 upon said reference clock signal.

Claim 18. (Cancelled)

1 19. (Currently Amended) The method of claim 17, said original signal comprising an  
2 input optical signal, said method[[,]] further comprising:

3 converting said input optical signal to an electrical signal;

4 outputting two duplicate signals substantially equivalent to said electrical signal, said  
5 two duplicate signals comprising a primary signal and a secondary signal; and

6 delaying said primary signal by said predetermined quantity of time, and outputting  
7 said primary signal, said delayed primary signal comprising said first signal.

1 20. (Previously Presented) The method of claim 17, said first and second signals  
2 comprising electrical signals.

1 21. (Currently Amended) The method of claim 17, said method ~~corresponding to~~

2 comprising receiving signals having a plurality of different bit rates.

1 22. (Currently Amended) The method of claim 17, said original signal received  
2 ~~corresponding to~~ comprising a plurality of original signals received, said recovering of said  
3 input clock signal and data from said original signal being performed for said plurality of  
4 original signals received, said plurality of original signals received having a respective  
5 plurality of different bit rates.

1 23. (Original) The method of claim 17, said recovering of said input clock signal and  
2 data from said original signal being performed for a plurality of original signals received,  
3 said plurality of original signals received having a respective plurality of different bit rates.

1 24. (Currently Amended) The method of claim 17, said method ~~corresponding to~~  
2 comprising receiving optical signals having a plurality of different bit rates.

1 25. (Previously Presented) The method of claim 17, further comprising:  
2 receiving an input optical signal;  
3 converting said input optical signal to an original electrical signal;  
4 outputting two duplicate signals substantially equivalent to said original electrical  
5 signal, said two duplicate signals comprising a primary signal and a secondary signal; and  
6 delaying said primary signal by said predetermined quantity of time, and outputting  
7 said primary signal, said delayed primary signal comprising said first signal, said outputted

8 primary signal comprising said second signal.

1 26. (Currently Amended) The method of claim 17, said receiving of said original  
2 signal being performed by an optoelectric converter, said original signal being an [[optic]]  
3 optical signal, said optoelectric converter converting said original [[optic]] optical signal to  
4 an electrical signal, said method further comprising:

5 outputting two duplicate signals substantially equivalent to said electrical signal, said  
6 two duplicate signals comprising a primary signal and a secondary signal, said outputting of  
7 said two duplicate signals being performed by a buffer; and

8 delaying said primary signal by said predetermined quantity of time, and outputting  
9 said primary signal, said delayed primary signal comprising said first signal, and said  
10 outputted primary signal comprising said second signal.

1 27. (Currently Amended) The method of claim 17, said generating of said reference  
2 clock signal being performed by a clock generator, said clock generator comprising a  
3 plurality of oscillators for generating clocking signals of different frequencies, and  
4 ~~selectively operating~~ said oscillators being selectively operated to generate said reference  
5 clock signal in dependence upon said detected bit rate.

1 28. (Currently Amended) An apparatus, comprising:

2 a converter for converting an input optical signal to an original electrical signal;

3 an identification unit for receiving said original electrical signal, for generating a first

4 signal comprising said original electrical signal delayed by a predetermined quantity of time,  
5 for generating a second signal comprising said original electrical signal not delayed, for  
6 forming a third signal by performing an exclusive-OR logic operation upon said first and  
7 second signals, and for detecting a bit rate in dependence upon said third signal;

8 a clock generator for generating a reference clock signal in dependence upon said  
9 detected bit rate; and

10 a recovery unit for recovering an input clock signal and data from said input optical  
11 signal in dependence upon said reference clock signal;

12 said identification unit comprising:

13 a first unit for delaying said original electrical signal, for performing said exclusive-  
14 OR operation upon said first and second signals, and for forming said third signal; and

15 a second unit for low-pass filtering said third signal, and for detecting said bit rate in  
16 dependence upon a voltage level of said low-pass filtered third signal.

1 29. (Currently Amended) The apparatus of claim 28, said clock generator comprising  
2 a plurality of oscillators for generating clocking signals of different frequencies and for  
3 selectively operating said oscillators to generate said reference clock signal in dependence  
4 upon said bit rate detected by said identification unit.

1 30. (Currently Amended) The apparatus of claim 28, said input optical signal  
2 ~~corresponding to~~ comprising a plurality of input optical signals, said recovering of said input  
3 clock signal and data from said input optical signal being performed for each of said plurality



4 of input optical signals, said plurality of input optical signals received having a plurality of  
5 different bit rates.

1 31. (Currently Amended) The apparatus of claim 30, said converter ~~corresponding~~  
2 ~~to~~ comprising an optoelectric converter.

1 32. (Currently Amended) The apparatus of claim 31, said identification unit  
2 ~~corresponding to~~ comprising a bit rate identification unit.

Claim 33. (Cancelled)

1 34. (Currently Amended) The apparatus of claim 28, said second unit comprising:  
2 a low-pass filter for low-pass filtering said third signal;  
3 an analog-to-digital converter for receiving said low-pass filtered third signal, and for  
4 converting said low-pass filtered third signal from an analog signal to a digital signal; and  
5 a determiner for determining said bit rate in dependence upon said digital signal  
6 received from said analog-to-digital converter.

1 35. (Previously Presented) The apparatus of claim 28, said first unit comprising:  
2 a buffer unit for receiving said original electrical signal, and for outputting two  
3 duplicate signals substantially equivalent to said original electrical signal, said two duplicate  
4 signals comprising a primary signal and a secondary signal;

5 a delay unit for receiving said primary signal, for delaying said primary signal by said  
6 predetermined quantity of time, and for outputting said primary signal, said delayed primary  
7 signal comprising said first signal; and  
8 an operator unit for performing said exclusive-OR logic operation upon said first and  
9 second signals.

1 36. (Previously Presented) The apparatus of claim 28, said clock generator  
2 comprising a plurality of oscillators for generating clocking signals of different frequencies,  
3 said oscillators being selectively operated to generate said reference clock signal in  
4 dependence upon said bit rate detected by said identification unit.

Claims 37 - 40. (Canceled)

1 41. (New) The apparatus of claim 1, wherein said recovery unit comprises a  
2 programmable recovery unit.

1 42. (New) The method of claim 17, wherein said recovery step is performed by a  
2 programmable recovery unit.

1 43. (New) The apparatus of claim 28, wherein said recovery unit comprises a  
2 programmable recovery unit.